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# Staff Stress: The Sleeping Cell of Healthcare Failure

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**Abstract**

Much research has been conducted to increase the resilience of healthcare service to major hazards; however, every time a major hazard takes place we discover that this critical service is yet to reach the anticipated resilient state. This paper reports an ongoing research work that looked at: the resilience of the structure of healthcare facilities, equipment stability, lifeline (utility) supplies, the interaction between hospitals and emergency agencies and the support the latter can provide during major emergencies. This paper presents findings on the ability of human resources to deal with the stress associated with major hazards. A mixed research method was adopted, including a systematic literature review followed by a survey to gather evidence about the stress level amongst healthcare staff in hospitals and their motivation. The literature review was conducted to find information about the level of stress healthcare staff experience with during major emergencies. Findings suggest that healthcare staff remain at high risk of stress and thus represent a major weakness of healthcare service resilience. The research concludes with a set of recommendations to address this issue.


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*Keywords:* Healthcare; major hazards; staff stress; resilience.

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## 1. Introduction

It is very hard to argue the criticality of healthcare pre, and post disasters. Many articles have been written emphasizing the role of healthcare facilities during disasters and a significant number of tools have been developed to evaluate the resilience of healthcare and facilitate the development of resilience strategy. So why, following a disaster, do we start talking again about vulnerabilities and challenges preventing a smooth healthcare? Have we understood how these facilities operate? Are we lacking understanding of the nature of hazards and the way they affect healthcare? Or is it something else that we still need to discover? This study complements the body of knowledge by arguing that the resilience of healthcare service can be compromised if staff members are under excessive pressure beyond their coping ability from their day to day duties.

### *1.1. Understanding the resilience of healthcare*

Resilience is defined as "the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of the hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions" [1];. Achour et al. [2] and Alexandre [3] suggest that resilience needs to take a holistic view of the system and its physical, technical social and/or psychological components. The rationale behind this view is the complexity of healthcare service where systems heavily depend on each other to operate. For example, the loss of electric power, water supply, gas or staffing could render the hospital in a useless entity, let alone if you lose two or three of these components at the same time. In order to ensure that this scenario does not happen healthcare facilities are often equipped with alternative sources to provide a certain level of redundancy in the system and increase the chance of continuous operation.

Whilst healthcare facilities can secure some independency from power, gas and water, it remains dependent on other entities (e.g. suppliers and roads) to continue providing healthcare. The recent WHO Hospital Safety Index [4] succeeded in capturing some of this complexity and started 'building the jigsaw'. Such a tool [4] requires assessors to check the condition of detailed components such as beams, joints and cables and to ensure that facilities have coordination mechanisms and cooperative arrangements with the wider healthcare networks.

Substantial amount of research has been conducted to improve the structural and non-structural performance of healthcare and some of these have turned into guidance and codes. Similarly, the disaster response and emergency planning systems have been widely published. In addition, the WHO and UNISDR campaigned to increase awareness and emphasize the criticality of healthcare resilience; and many case studies have also been published providing implementation models. So why do we still see interruption of healthcare every time a disaster takes place? Implementation is perhaps one of the key areas that need to be investigated as it might reveal new resilience gaps. The implementation we refer to in this study is the ability of staff to transfer these guidance and codes into reality. The major question asked in this study is 'do staff have the capacity to engage in improving the resilience of healthcare?'

### *1.2. Healthcare staff*

The operation of a healthcare facility is secured by a multi-disciplinary team playing clinical and non-clinical roles. Clinical roles include doctors and nurses whose responsibility is managing treatment and providing necessary clinical care, managing clinic-operational process (e.g. triage), and running wards. Treatment could also be provided by a non-clinical allied health professionals who assess, diagnose and treat individuals with specific health conditions (e.g. speech difficulty, obesity etc.). They also play a role in preventing diseases and disability and include pharmacist, dieticians, and occupational therapists. The non-clinical role involves administrators and clerk who look after the administrative and organizational side of the healthcare facility. Engineers and technicians are those equipped with the knowledge and skills to run and maintain the technical functionality of the facility (e.g. lighting, IT, water and gas supplies). Others members are in charge of maintaining the hygiene, safety and comfort of the residents and visitors of the facility. Each of these staff categories plays a major role in the day to day and perhaps even greater role in major emergencies when demand increases and resources/supplies decrease.

This study focuses on the capacity of clinical staff members as they play a direct and leading role in dealing with casualties. They are often required to work beyond their daily capacity due to the relatively larger number of 'service

users' and even more during the aftermath of disasters, related to an earthquake, major explosions/fires or nuclear/biological leaks.

Literature reveals a wide range of staffing issues all of which lead to reduction of staff number during major disasters. During the 1995 Hyogo-Nambu Earthquake (Kobe, Japan), "the attendance rate of personnel in hospitals on the first day of the disaster was 58.4% for physicians, 35.0% for dentists, 44.2% for nurses, and 31.0% for clerical staff. In the first few hours, when the hospitals in the disaster area were extremely busy, less than 50% of personnel were able to attend their hospitals" [5] due to road damage, being amongst casualties themselves or supporting affected family members. Morris et al [6] reported that following hurricane Sandy, staff could not attend their hospitals due to lack of transportation of flooded roads, experiencing properties damage or loss, health and safety of own families and childcare. Despite these major difficulties, staff demonstrated a strong sense of responsibility to attend hospitals [6]. Whilst these were the findings of the hurricane Sandy, healthcare staff in Iran do not seem to be aware of their major role in disasters as less than 10% of survey participants recognize that disaster management is one of their duties [7]. Healthcare staff are required to attend and take part in disaster training and drills. This means that they need to be motivated, have time and opportunities to learn and apply their learning. This does not seem an easy goal as [8] reported that hospital nurse staffing is a major issue in the USA with estimated shortage of 120,000 nurses which will probably increase to 250,000 by 2025 [9]. This indicates that the day to day workload will remain high and opportunities for learning about disaster resilience might become limited.

Experience highlights that clinical staff go through various challenges. The 2010/2011 New Zealand earthquakes caused significant challenges to general practitioners some of whom had to leave their homes due to damage and were themselves receiving help from their local community and others became jobless due to the loss of their clinics or total migration of their local communities [10]. Many of the clinical staff who dealt with the 1995 Kobe Earthquake casualties suffered psychological disorder and many of them were followed up by mental health specialists [11].

Clinicians play a role not only in dealing with the numbers of casualties following disasters, but also in preparing patients for disasters through spreading knowledge and awareness specifically to patients with severe health conditions such as cancer and chronic illnesses and their families to seek support and provide care when this is not available. However in some cases, before playing this role, doctors might need to go through disaster training in order to build self-resilience "*against the risks of vicarious trauma and compassion fatigue*" [10]. Under such circumstances, it is critical to understand how healthcare staff feel about their workplace and workload. Such information will help understanding their ability to respond to major emergencies.

## 2. Research design

The study adopted a mixed research method where a combination of traditional and systematic literature were conducted to collect the relevant information. It was guided by three major research questions:

- What role do healthcare staff play in major disasters?
- Do healthcare staff have the capacity to conduct the role allocated to them in major disasters?
- What strategy do responsible authorities need to develop in order to enhance healthcare resilience?

Due to the nature of the first question, a standard literature approach was conducted to explore the role of healthcare staff in disasters and support the development of the research direction. The findings were complemented by a systematic review that sought the compassion fatigue amongst healthcare staff. A standardized data collection form was used twice (within 48 hours) for each study in order to reduce bias. A set of keyword combination using AND/OR Boolean operators has been used to collect data from 10 international databases (e.g. AMED, CINHAL, COCHRANE, SCOPUS etc.). These led to the identification 990 articles, which were screened thoroughly using a screening process resulting in seven articles that meet the study requirements (see Fig 1). The full detail of this review will be published in a separate article.

The data collection process was supplemented by a case study from the Middle-East where 117 hospital nurses were requested to respond to a questionnaire survey. The aim of this questionnaire is to understand how motivated nurses are while conducting their daily work. A total of 39 questions covering: ability to take initiatives; emotional attraction and affective commitment to work; willingness to take extra contractual duties; willingness to work longer working hours; recognition and demographic information about the participant. Responses were received from 57 participants. Respondents were requested to indicate their answer to each question using Likert scale (1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly agree). They were also given the option to write a free text should they choose to add more information.

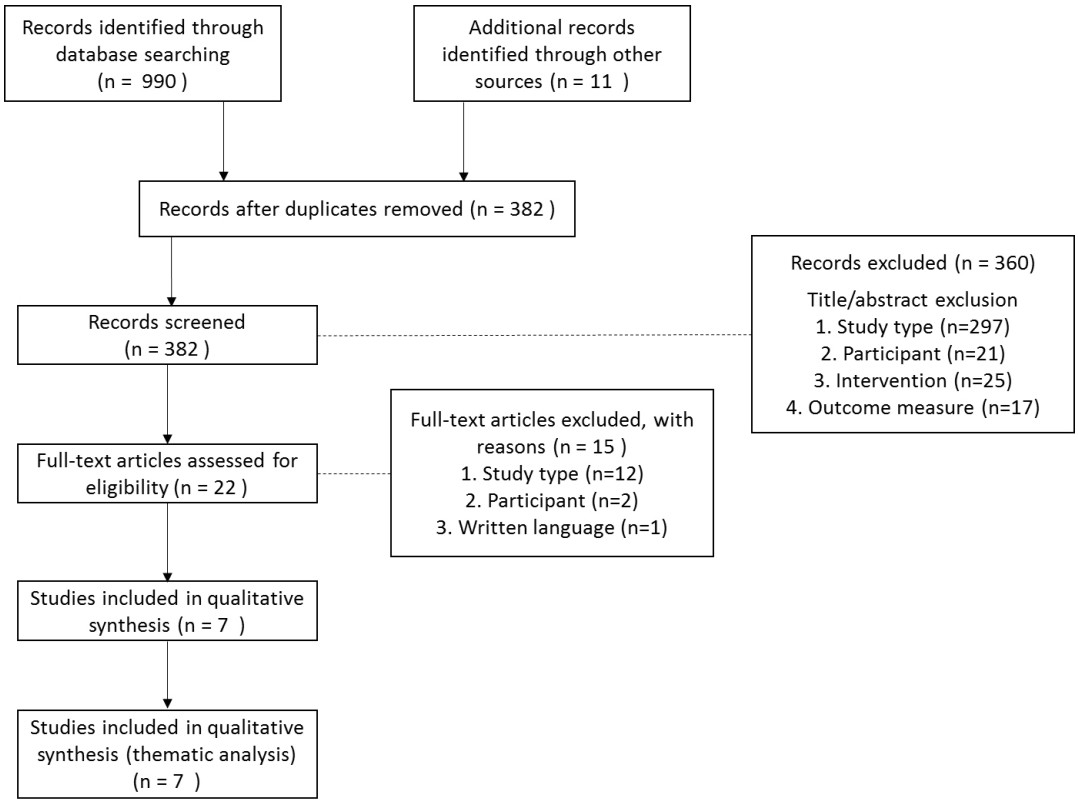


Fig. (1). Study selection process

## 3. Results: Healthcare staff capacity to deal effectively with large disasters

### *3.1. Staff mental health*

For staff to deliver compassionate care as demanded by their health authorities and/or patients, it is vital that the staff themselves are valued by their organizations. Examples of good practice was revealed in a national audit of the National Health Service (NHS) trusts in England – where findings included an increase in the organizational interest in managerial training and strategic development for improving staff health and wellbeing [12]. There are multiple causes of compassion fatigue, which can be broadly considered in two categories; those caused at organisation level and those at individual level. Much work has been done to ascertain evidence at each level, which is imperative to consider when developing any intervention to reduce compassion fatigue (see Table 1).

Table 1. Factors affecting staff compassion fatigue.

| Factor | Level | Source |
|---|---|---|
| Workplace environment | Organisation | [13] |
| Organizational planning and consideration of nature of the job and its demands on the individual | | [14] |
| Workplace stress | | [15,16 and 17] |
| Supervision | | [18] |
| Training | | [19] |
| Personal trauma history | Individual | [20] |
| Individual coping strategy | | [21] |
| Self-care strategies | | [22] |
| Level of experience | | [23] |
| Degree of exposure to suffering | | [24] |
| Length of time providing care to those who are suffering | | [25 and 19] |

Findings revealed that most research focused on measuring the effects of particular interventions to reduce compassion fatigue. Some interventions include interactive seminars, accessing specific material pertaining to recognition, prevention and treatment of compassion fatigue [26]. Resilience trainings, relaxation exercises, where participants mediated regularly throughout the study period, and complementary therapies such as auricular acupuncture were studied as interventions. The studies demonstrated a significant difference post-intervention for compassion fatigue, secondary traumatic stress and burnout. Whilst this could be viewed as success on the short-term, it remains difficult to know in the long-term. The situation therefore remains vague and difficult to predict whether staff members have the capacity to deal with the stress associated with major disasters when demand is at peak and resources are at the shortest. It is however necessary to develop the resilience of the staff members through providing an appropriate work conditions and consider the individual needs of staff as these will ultimately will positively affect the physical and mental health of staff.

### *3.2. Staff motivation and compassion satisfaction*

According to Maslow's hierarchy of needs, an individual needs to have a sense of belonging and esteem in order to develop the feeling of self-fulfillment which is the key of motivation. Recognition and appreciation are therefore instrumental in shaping employees' existing behavior; and when employees are not recognized and appreciated they are more likely to exhibit negative behavior while at work [27]. Higher levels of motivation lead to increased productivity and compassion satisfaction, which yield a feeling of pleasure from being able to do the work. In the healthcare context and due to the sensitive nature of their work, healthcare staff are in particular need of motivation. Healthcare organisation's performance indicators (e.g. speed of responding to patient needs, quality of services delivered etc.) are only achieved when nurses develop and exhibit organizational citizenship behavior [28].

Findings suggest that 82 percent (%) of the participants agree that they need to have more autonomy to make more important decisions. A participant stated that *"I feel there is need for more autonomy and freedom as this is the only way of ensuring that everyone takes personal responsibility for whatever one does."* Participants acknowledged that they have a certain level of autonomy but believe that this is not sufficient. The immediate impact of this is less willingness to work: 42% of the participants reported that they disagree to help others whenever they need and that they do not find their jobs inspiring despite the fact that they innately love their profession. This indicates that the work environment is where the problem lays as the same number of participants feel neutral about their workplace and they do not feel that they have any particular affection toward it. Thirty seven percent have clearly stated that they do not have any affective relation with their workplace. The challenge therefore is what course of action an organisation needs to take in order to build the emotional link between the staff and the workplace? It is certainly not just about the money but about the autonomy, the sense of belonging, and appreciation. A participant stated that "*if only something was done to make me more motivated I would be more committed to my work and this institution. As it stands, I feel that there is a lot more that is yet to be done by the senior management in terms of appreciating what the lower ranking employees do. Our work needs to be rewarded more and our efforts appreciated*." On the other hand, 21% of participants expressed complete satisfaction with their jobs and workplace. A participant stated that "*even if I was to be paid slightly more in another hospital, I would not leave this one. I am just very happy here for*

*some reason I think it is the fact that we are involved in decision-making and the senior management team seems to be truly concerned about our welfare.*"

The sense of neutrality continued with the response extra-contractual work roles: 43% of the participants feel neutral whilst those who disagree/strongly disagree represent 31% which is slightly higher than those who are happy to take extra contractual roles (26%) without further payments. Whilst this can be understood as weakness, it can actually turn into strength if the organization succeeds in building a stronger sense of social responsibility. Specifically, staff stated: "*It is my patients to whom I am committed most. However, I cannot have the patients without the hospital, and therefore maybe I am committed to the hospital as well. It works both ways.*"

## 4. Discussion

Findings suggest that healthcare staff are yet to fulfill their basic and psychological needs of Maslow's hierarchy. Their safety needs is yet to be met due to issues such as compassion fatigue (i.e. physiological needs) and lack of motivation. The performance of healthcare staff in many countries such as the United Kingdom is measured according to strict and absolute criteria such as the four-hour target which requires patients attending an emergency department to be seen, treated, and admitted or discharged within four hours. This meant that healthcare staff had to work toward this target regardless of the number of patients they are receiving, clinical processes. These absolute targets can be understood from quality assurance and control point of views but the measures put to support such decisions are simply absent and thus it is up to the healthcare staff to cope with the adverse consequences.

Findings suggest that staff attendance post disasters is often lower than usual due to their inability or refusal to attend. There is a debate amongst researchers; whether staff who can attend will or will not as this decision is mainly driven by their professional duties. Morris et al. [6] suggest that building the sense of duty in healthcare staff could increase the chance of having higher attendance rates. The issue is perhaps not whether the staff will (or will not) report to work, although this is very important issues, but it is about the staff ability to respond effectively to major emergencies without suffering physically or mentally as a consequence of their attendance. If during their day to day duties they are not motivated and suffer from high workload/fatigue, they will most likely be in an unfavorable position to work effectively and in a healthy manner.

Disasters are always very stressful due to lack of resources, high and urgent demand. As the findings demonstrated, healthcare staff are amongst the direct and/or indirect 'victims' of disasters. The causes of their indirect victimisation are what this study is investigating. Staff need to: be well educated about mass casualty management, resilient to the pressure and stress they go through, and have strong ability to take initiatives and decisions that will increase the effectiveness of their response. Findings suggest that education and trainings have had a positive impact on healthcare staff. However the form these trainings take varies. In Turkey and many other countries, managers use real cases as a way to train their staff. Medical staff are sent to disaster stricken areas/countries for the purpose of providing aid but perhaps more importantly is to learn new skills. However, going back to the findings, this is probably too ambitious for some countries as staff are actually unable to meet their day to day needs. Healthcare authorities and organisations need to support healthcare staff by reducing their workload and by understanding their needs so that they enjoy their work more, this will likely motivate staff to learn more about disasters in a way that will enhance effective emergency response.

The role of healthcare staff is no less importance to the role of any engineering system and management procedure for the resilience of healthcare to major disasters. However, engineering systems theories have been developed to assess and enhance their resilience, whilst the role of staff is yet to be sufficiently addressed. Future research therefore will focus on the interaction between healthcare staff and the engineering systems in order to develop a more integrated approaches for healthcare resilience. The challenge is how to link these different but interdependent social and engineering systems into a single framework. The exercise is very much a jigsaw building where all pieces need to come and get joined together to form a bigger and clearer picture.

## 5. Conclusions

Healthcare remains one of the most critical services in any country during and post disasters. It depends on large number of soft and hard systems such as buildings, equipment and highly qualified human resources. The study reveals that there are many challenges facing the continuity of healthcare service, and that despite the amount of research, healthcare service is still under risk of inoperability. The research investigated the readiness of healthcare staff to respond to major disasters considering their day to day duties.

Findings suggest that there are several challenges facing healthcare staff, compassion fatigue and motivation. Staff suffer from increasing workload and stricter performance measures with less flexibility. This has caused psychological and physical stress and thus makes them unable to respond to any further stress associated with major disasters.

Findings also suggest that staff recognition and motivation are very important for their performance. Many staff members do not feel attached to their workplace and do not feel that they have enough flexibility to take initiatives and lead their own way. These issues are also creating further pressure and are less likely to motivate staff to learn how to deal with major disasters and motivate them to report to workplace in case of a major disaster exposing the healthcare service to a major risk of staff shortage and thus inoperability.

The following are recommendations that should help authorities and healthcare organisations address the above challenges:

- healthcare staff performance needs to be measured according to a set of criteria that takes into consideration their duties and rights/ambitions; and
- they are given the opportunity to acquire new knowledge and develop new skills that will enable them to deal with major emergencies.

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